Speaker: **Dr. David Leach** (Department of Mathematics, UWG)

Title: **Modular Leech Trees**

Abstract:
In 1975 John Leech asked when can the edges of a tree on $n$ vertices be labeled with positive integers such that the sums along the paths are exactly the integers $1, 2, \ldots, \binom{n}{2}$. He found five such trees, and no additional trees have been discovered since. In 2009 Leach and Walsh introduced the idea of labeling trees with elements of the group $\mathbb{Z}_k$ where $k = \binom{n}{2} + 1$ and examined the cases for $n \leq 6$. In this talk we will look at some necessary conditions for the existence of modular leech trees and specifically at the case where $n = 8$.

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Speaker: **Elizabeth McCrina** (Department of Mathematics, UWG)

Title: **Lights out over $\mathbb{Z}_7$**

Abstract:
In this presentation, we examine a version of the *Lights Out Game* over the field $\mathbb{Z}_7$. Specifically, we study the game over graphs including: a path on three vertices, a complete graph on $n$ vertices, and a complete graph on four vertices with one edge removed. We determine a method for solving these instances and their respective solutions.